

REMARKS

Status of Claims

Without prejudice, new independent claim 20 and dependent claim 21 have been added to more clearly set forth the subject matter of the invention. Original claims 1 through 19 have been amended to make them consistent with new independent claim 20. Claims 12 and 13 have been cancelled since their subject matter is now set forth in new claim 20. No matter has been added.

Rejections of Formality

The examiner has objected to claim 14 based on a number of informalities stemming from the fact that claim 14 depended incorrectly from claim 8. In response, claim 14 has been amended to depend instead from claim 10. Applicants submit that this change in dependency obviates the objections raised by the examiner.

Prior Art Rejections

The examiner has rejected a number of the claims under 35 U.S.C. §102 as being anticipated by Sampson et al. (U.S. patent No. 4,767,176) and Kurashima et al. (U.S. had No. 5,596,665).

In response, applicants submit that the claims, as amended, are patentably distinct over both of these references. Specifically, the claimed invention, as amended, recites an opto electric module comprising first and second parts which mate to hold at least one optical sub-assembly (OSA) in precise alignment in the module to receive a connector. The OSA is connected to a circuit board via a flexible circuit which extends orthogonally from the OSA before bending to make electrical contact with a planar surface of the circuit board.

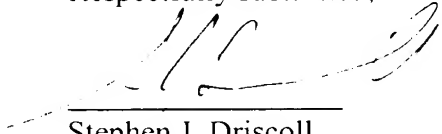
The opto electric module of the claimed invention offers a number of important advantages over prior art modules. First, the first and second members serve to hold the OSA precisely to receive a mating connector. This saves time in assembly by avoiding the need to align the OSA in the module in a separate operation. Second, the flexible circuit connecting the OSA to the circuit board offers a degree of flexibility between the circuit board and the OSA. Since the OSA is not rigidly attached to the circuit board, it can move relative to the circuit board without adversely affecting the electrical connection between the two. Furthermore, since the flex circuit contacts the circuit board on its surface rather than on its edge, there is axial tolerance between the OSA and the circuit board. That is, unlike a lead that is electrically connected to the edge of a circuit board where there is only one precise axial location to make the connection, i.e., at the edge of board, the flex circuit of the claimed invention electrically connects to the circuit board along a surface thereby allowing the connection to be made at any of a number of axial locations. Applicants have found that this flexibility facilitates the assembly of the module by relaxing tolerances between the OSA and the circuit board.

The cited prior art does not disclose the features of the claimed invention. Specifically, neither Kurashima et al. nor Sampson discloses a flexible circuit which extends orthogonally from the OSA before bending to make electrical connection with a planar surface of the circuit board. To the contrary, Sampson is directed to an entirely different module configuration which does not seem to disclose a discrete OSA connected to a circuit board. Additionally, Kurashima et al. discloses an OSA which is connected directly to a circuit board by a flexible portion of the circuit board which is bent to receive the leads extending from the OSA. There is no discrete flexible circuit disclosed. Consequently, there is no electrical connection between the flexible circuit and the top or bottom surface of the circuit board. Rather, the OSA is directly connected with the circuit board. Such a direct connection does not afford the flexibility and axial tolerance between the OSA and the circuit board as discussed above with respect to the claimed invention. Since the cited references do not disclose the elements of the claimed invention, the rejection should be withdrawn and the claims allowed.

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An early and favorable reply is earnestly solicited.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'SJD', is written over a horizontal line.

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A: response to oa dated 5-23-03 wpd